# Training in NOAA Satellite Proving Ground

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**NOAA/Satellite Information Service**

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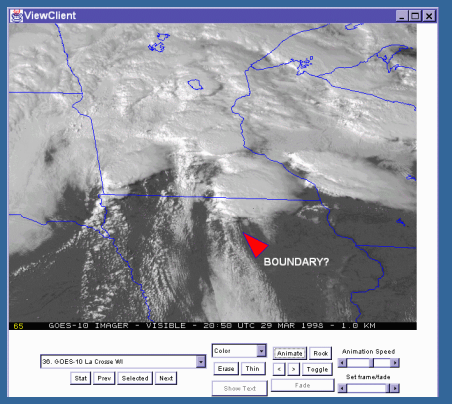
# Satellite Proving Ground Training

- Education, Outreach, and Training are Pathways
- Satellite Training Community is Specialized
- Training for GOES-R Proving Ground Partners
- Moving to Roadmap 2020
  - ✓ Impact-based Decision Support Services
  - ✓ Mobile Device Messaging/Alerting/Locating
  - ✓ Full-resolution Data, Meta-data
  - ✓ Weather Ready Nation



# Leveraging Training for Performance Improvement

*Workforce Management, Feb 2009*

## Lesson from Flight 1549

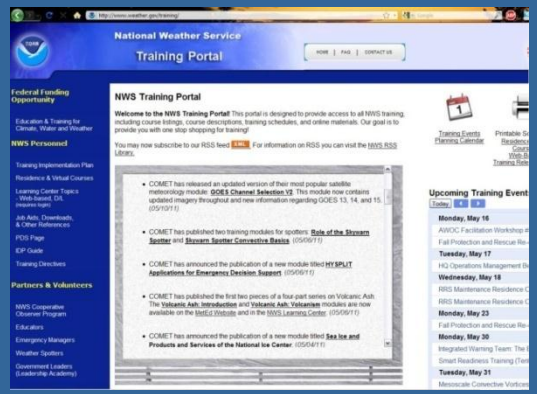
"Training is a line item
that's easy to whack when budgets get tight,
because it's not always easy to see
its immediate payoff.

That misses the point, however.

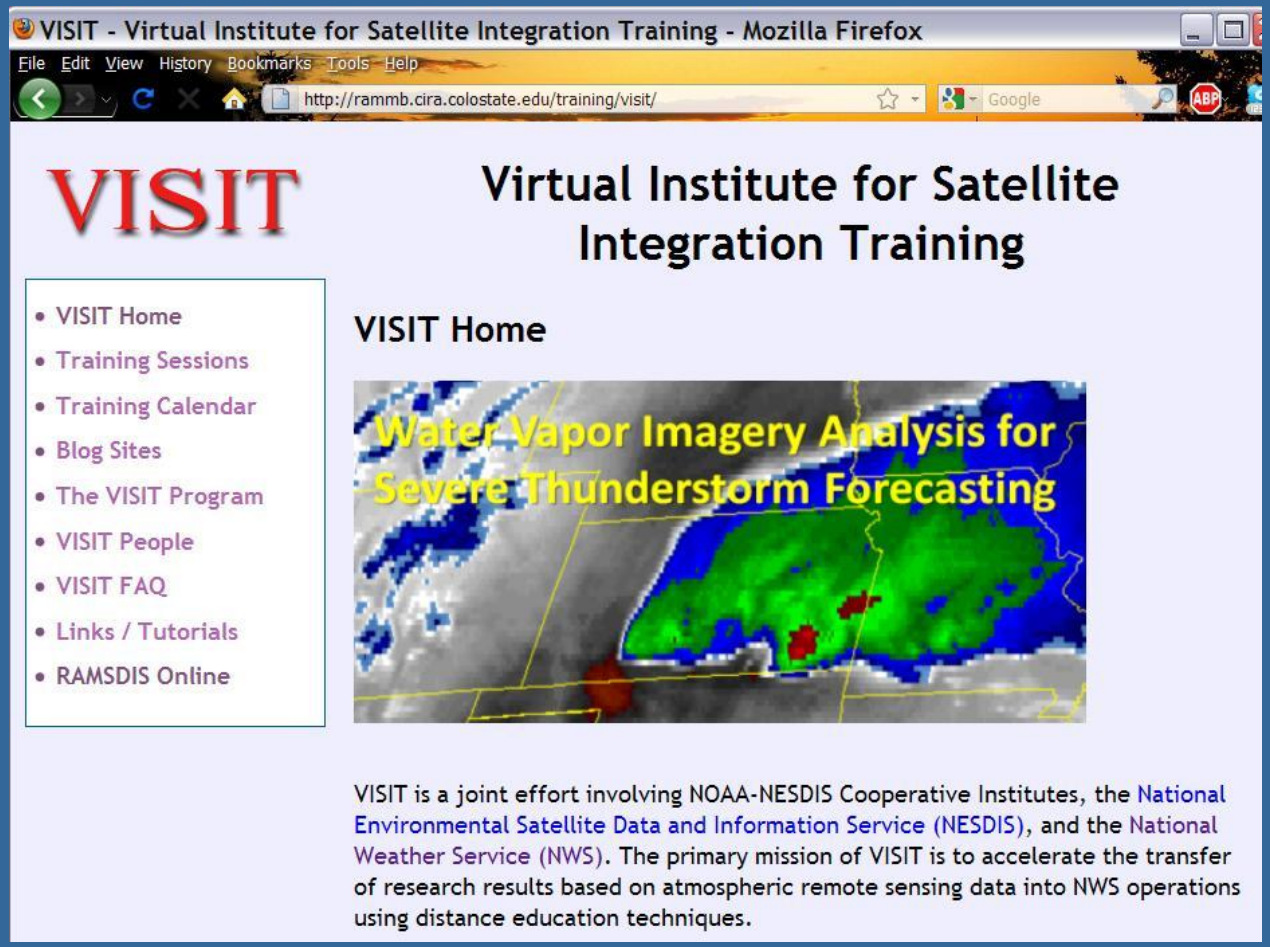
Training is about
getting people ready to execute and
put their training to the test
when the organization needs it the most."

# Training Community

- Dedicated NWS Training Division, Center & 2 Branches
- Many Partners in NOAA
  - NESDIS, NWS, OAR, Oed, NOS
  - NOAA Cooperative Institutes & Programs
  - UCAR/COMET
- US Agencies (DOD, NASA, DHS/FEMA, DOT, USGS,…)
- Academic – Colleges and Universities
- Private Sector



# VISIT & Satellite (SHyMet) Courses

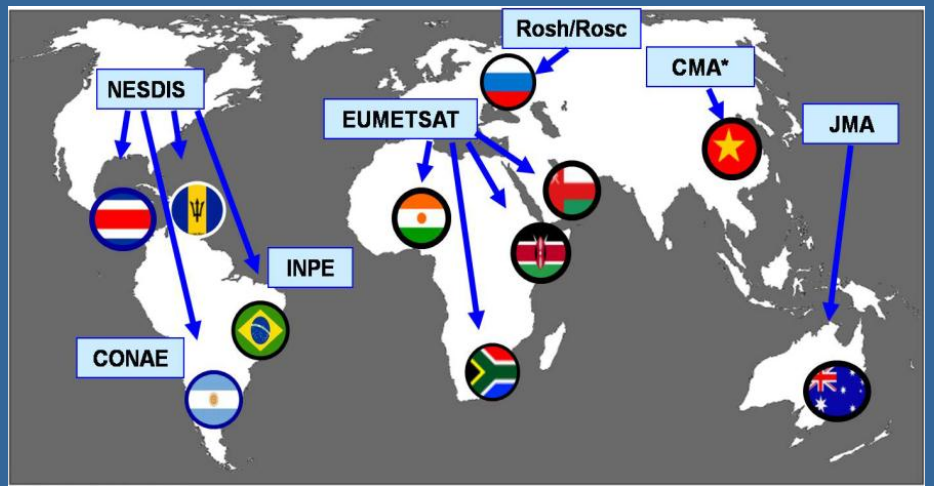


# Training Community

## International Collaboration

WMO Space Programme Virtual Laboratory

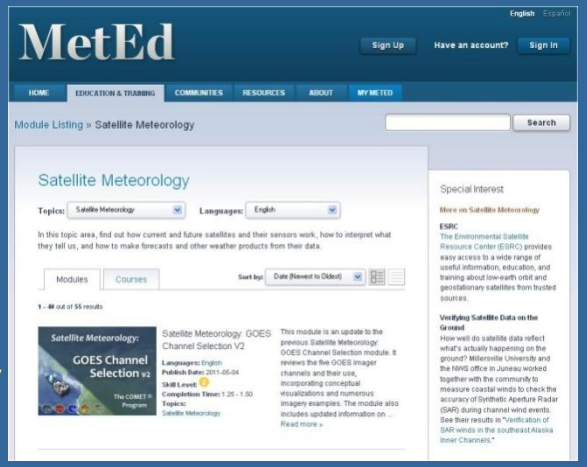
- ✓ Centres of Excellence in Americas
  - ✓ Argentina, Barbados, Brazil, Costa Rica
- ✓ EUMETSAT
- ✓ Canada, China, Japan, Australia, others…



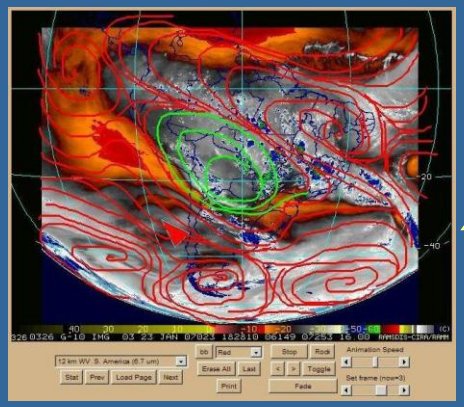
# NOAA & Partners
## Working Together for Satellite Training


VISIT (CIRA/CIMSS/SPoRT)

EUMETSAT, DOD, NASA, DOT, …



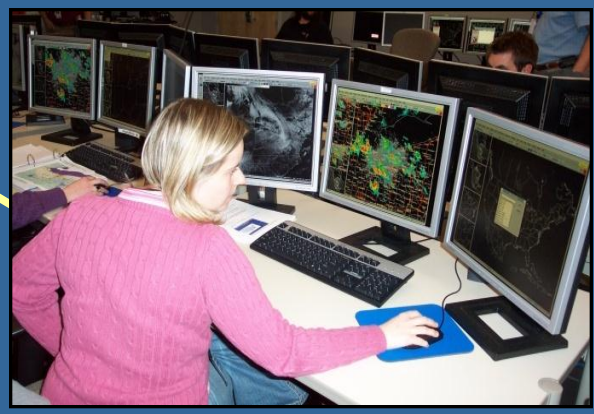

UCAR/COMET



WMO (Virtual Lab)

**Satellite Proving Ground**

**Users, Developers & Managers**

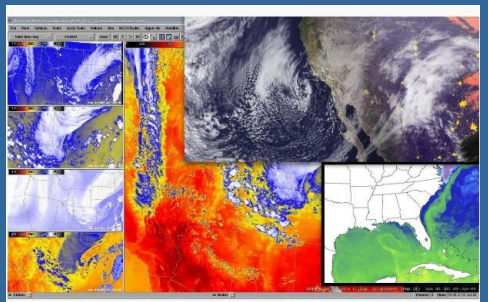


NWS Training Division

# GOES-R Proving Ground Training

## Prepare NOAA Users & Developers

- Rapidly Evolving Technology & Operations
- Human Performance ➡ Support Services
- Evolving Societal Needs & Impacts



*Examples of GOES-R Proving Ground images and products*

**GOES-R Satellite Proving Ground Mission Statement**

The Geostationary Operational Environmental Satellite (GOES-R) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems…

# Proving Ground Mission Statement

GOES-R Proving Ground engages NWS in pre-operational demonstrations of selected capabilities of next generation GOES.

The Proving Ground accomplishes its mission through:

- Sustained interaction between developers & users
- **Training**
- Product evaluation
- Solicitation of user feedback
- Product Improvement
- New Science and Technology Infusion

# GOES-R Proving Ground



**Resources**

Proving Ground Products List (Table)
- CIMSS NOAA Testbed Support Products
- CIRA Products
- SPoRT Products
- CIMSS "MODIS Imagery in D-2D"

Meetings and Presentations
Teleconferences

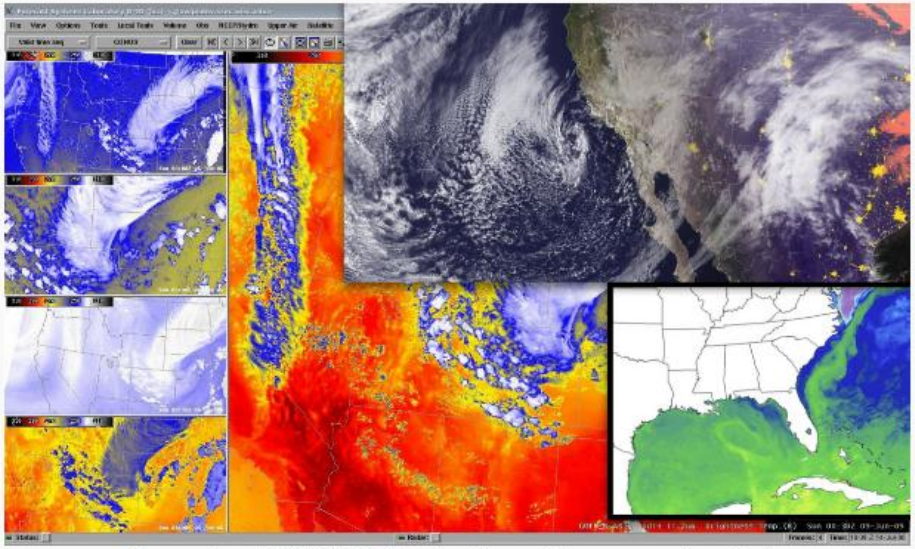
NWS Collaborative Site Visits
Proving Ground Timeline

**Proving Ground Partners**
- Two-Page PPF
- Two-Page PDF
- Page 1 PNG
- Page 2 PNG

GOES-R Advanced Baseline Imager (ABI) Bands
GOES-R ABI Sample Product Table
GOES-R ABI Weighting Function Examples

**Related Links**

Proving Ground Overview
GOES-R "101" VISITview lesson
COMET GOES-R: Benefits of Next Generation Environmental



*Examples of GOES-R Proving Ground images and products*

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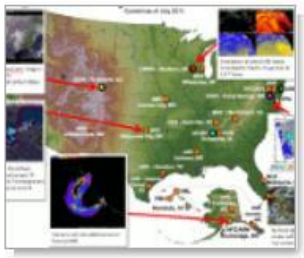
*>> Read more*

# VISIT Training

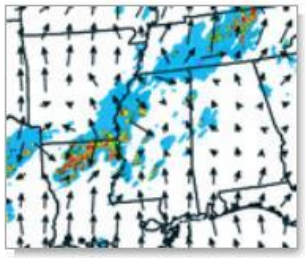
| Title | Topic | Developed | Level | Instructor(s) | Recorded | Talking points | Live Training | Length (Min) |
|---|---|---|---|---|---|---|---|---|
| Volcanoes and Volcanic Ash Part 2 | Aviation / Satellite | 2011 | Basic | Braun | Y | Y | N | 90 |
| Objective Satellite-Based Overshooting Top and Enhanced-V Anvil Thermal Couplet Signature Detection | GOES-R Proving Ground | 2011 | Basic | Lindstrom | Y | Y | Y | 60 |
| Synthetic Imagery in Forecasting Severe Weather | GOES-R Proving Ground | 2011 | Int | Bikos | Y | Y | Y | 60 |
| Synthetic Imagery in Forecasting Orographic Cirrus | GOES-R Proving Ground | 2011 | Basic | Bikos | Y | Y | Y | 30 |
| Morphed TPW Detection (MIMIC) | Satellite | 2010 | Basic | Lindstrom | Y | Y | Y | 45 |
| Regional Satellite Cloud Composites from GOES | Satellite | 2010 | Basic | Connell | Y | Y | N | 50 |
| Aviation Hazards | Aviation / Sat | 2009 | Basic | Braun | Y | Y | N | 180 |
| Volcanoes and Volcanic Ash Part 1 | Aviation /Sat | 2010 | Basic | Braun | Y | Y | N | 140 |
| Basic Satellite Imagery Interpretation in the Tropics | Tropical / Sat | 2010 | Basic | Bikos | Y | Y | Y | 60 |
| The UW NearCasting Product | GOES-R Proving Ground | 2010 | Basic | Lindstrom | Y | Y | Y | 45 |
| Water Vapor Imagery Analysis for Severe Weather | Severe / Sat | 2010 | Int | Bikos | Y | Y | Y | 75 |
| The UW Convective Initiation Product | GOES-R Proving Ground | 2010 | Int | Lindstrom | Y | Y | Y | 45 |

# SPoRT PG Products

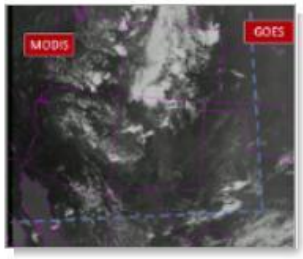
t a topic below for additional information.



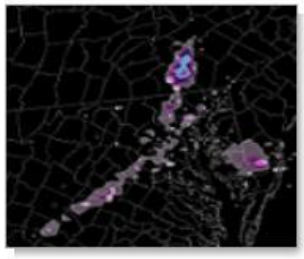
### Map of Partners
View a map detailing SPoRT's GOES-R PG partners.



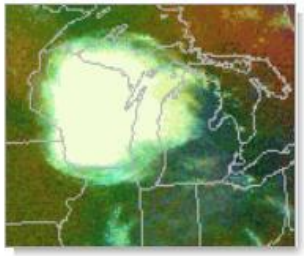
### Lightning Forecast Algorithm
The LFA predicts total lightning flash rate densities based on the model-simulated microphysics and convective storm kinematics.




### MODIS/GOES Hybrid
Demonstration products to prepare end users for the Advanced Baseline Imager (ABI) using a combination of MODIS and GOES imagery.



### Pseudo Geostationary Lightning Mapper
Lightning products that mimic the 8km resolution of the Geostationary Lightning Mapper (GLM).



### RGB Products
RGB composite images offer the possibility of compressing multi-spectral information content for optimum visualisation.

# COMET MetEd

## Satellite Meteorology

**Topics:** Satellite Meteorology **Languages:** English

In this topic area, find out how current and future satellites and their sensors work, how to interpret what they tell us, and how to make forecasts and other weather products from their data.

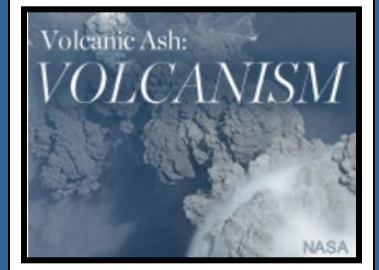
Modules | Courses **Sort by:** Date (Newest to Oldest)

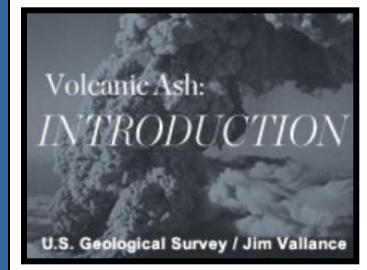
**1 - 40** out of **55** results


Satellite Meteorology: GOES Channel Selection V2

**Languages:** English
**Publish Date:** 2011-05-04
**Skill Level:** 2
**Completion Time:** 1.25 - 1.50
**Topics:**
Satellite Meteorology

This module is an update to the previous Satellite Meteorology: GOES Channel Selection module. It reviews the five GOES imager channels and their use, incorporating conceptual visualizations and numerous imagery examples. The module also includes updated information on ... Read more »



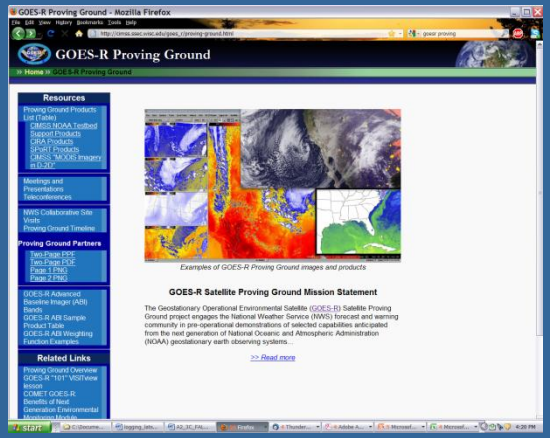


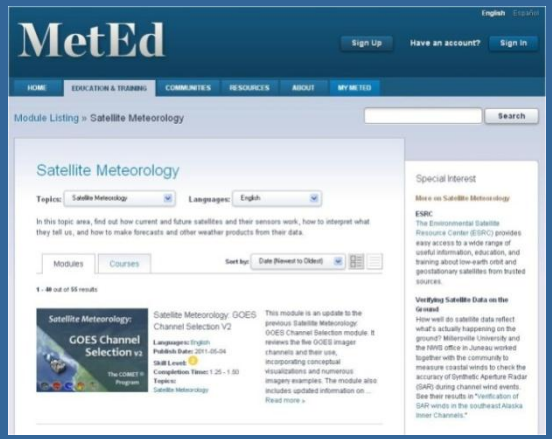
# COMET Outreach Program: GOES-R Research Project Proposals

- Funding for collaborative projects
  - Support Proving Ground's activities in testing, validating, or finding innovative uses for GOES-R products
  - University must collaborate with NWS office
  - 1-year projects, $15,000 limit
- More information
  - See website www.comet.ucar.edu/outreach
  - Or email outreach@comet.ucar.edu
  - Or see Wendy Abshire here at the conference

# Training Summary

- Collaborative International Training Community
- Help NOAA & Partners Meet Their Goals
- Integral to GOES-R PG & New NOAA Services
- Focus on Human Performance

# Web Information

| | |
|---|---|
| GOES-R | www.goes-r.gov |
| VISIT | rammb.cira.colostate.edu/visit |
| COMET METED | meted.ucar.edu |
| NOAA LMS | doc.learn.com/noaa/nws |
| CIMSS PG | **cimss.ssec.wisc.edu/goes_r/proving-ground.html** |



# Background Slides

## UW/CIMSS NOAA Proving Ground Testbed Decision Support Products

| Description | Contact | Training | | AWIPS Setup | Quicklooks/ Validation | Satellite Platform | Testbed Comments | Product Type |
|---|---|---|---|---|---|---|---|---|
| | | VISIT | PPT | | | | | |
| Convective Initiation(UWCI) | Wayne Feltz | X | X | X | X | GOES Imager | HWT, AWC, PR | Product Variant |
| Overshooting Top (OTTC) and Enhanced-V | Wayne Feltz<br>Kris Bedka | X | X | | | GOES Imager, MODIS/AVHRR | HWT, HLT | AWG Proxy |
| WRF Simulated Radiances (ABI Simulated Radiances) | Justin Sieglaff | | pdf | | X | | HWT | Risk Reduction |
| WildFire ABBA (WFABBA) | Chris Schmidt | | | | | GOES Imager | HWT | AWG Proxy |
| NearCast | Ralph Petersen | X | | X | X | GOES Imager, GOES Sounder | HWT | Risk Reduction |
| Volcanic Ash | Mike Pavolonis | X | X | X | | MODIS, SEVIRI | AAWU, AWC, HLT, PR | AWG Proxy |
| Low Clouds, Cloud Type, Fog | Mike Pavolonis | | X Quick Facts | | | MODIS-Alaska, GOES-CONUS | AAWU, AWC, HLT | AWG Proxy |
| $SO_2$ | Mike Pavolonis | | | | See Contact | MODIS | AAWU, AWC | AWG Proxy |

*Testbed Legend*

*HWT-Hazardous Weather Testbed*
*AWC/AWT-Aviation Weather Center/Testbed*
*HPC-Hydrological Prediction Center*
*AAWU-Alaskan Aviation Weather Unit*
*HLT-High Latitude Testbed–Alaska*
*NHC-National Hurricane Center*
*PR-Pacific Region*
*OPC-Ocean Prediction Center*

## UW/CIMSS Tropical Proving Ground Decision Support Products for the National Hurricane Center

| Description | Contact | Training | Data Page | Validation | Satellite Platform | Product Type |
|---|---|---|---|---|---|---|
| Tropical Overshooting Tops | Sarah Monette | X | X | | SEVIRI | AWG Proxy |
| Hurricane Intensity Estimation (HIE/ADT) | Tim Olander | X | X | X | SEVIRI | AWG Proxy |
| Saharan Air Layer (SAL) | Jason Dunion | SAL(Split Window) SAL (Pseudo Natural Color) | X | | SEVIRI | AWG Proxy |

# GOES-R - CIRA Product List

## Information

Experimental and operational data are used to demonstrate subsets of what will be available from GOES-R. The real time demonstrations include GOES-R AWG products, product variants, new products and new imagery/visualization techniques. The table below summarizes the products, with a clickable link to more information.

## CIRA Product List:

| Product & Description | Product Input | Demonstration Type | Demonstration Resolution | GOES-R Resolution | Product Status/Availability | Product Source |
|---|---|---|---|---|---|---|
| GeoColor Imagery | GOES/MODIS/DMSP | New Imagery/Visualization Technique | GOES 4 km/30 min | 2 km/5 min | Since Spring 2009 | CIRA |
| True Color Imagery | MODIS | New Product | 0.5 - 1 km/3 hour | 1 km/5 min | Since Spring 2010 | CIRA |
| Low Cloud / Fog Imagery | GOES | Product Variant | GOES 4 km/15 min | 2 km/5 min | Since Fall 2009 | CIRA |
| Cirrus Detection | MODIS | New Product | 1 km/3 hour | 1 km/5 min | Since Spring 2010 | CIRA |
| Orographic Rain Index (ORI) | GOES/Radar/GFS | New Product | 1 km/1 hour | 2 km/1 hour | Since Winter 2009 | CIRA |
| Marine Stratus Cloud Climatology | GOES | New Product | GOES 4 km/1 hour | 2 km/30 min | Since Summer 2010 | CIRA |
| Blowing Dust Detection (Split-window technique) | GOES | Product Variant | GOES 4 km/30 min | 2 km/5 min | Since Fall 2009 | CIRA |
| Blowing Dust (Blue-light absorption technique) | MODIS | Product Variant | 1 km/3 hour | 2 km/5 min | Since Spring 2010 | CIRA |
| Cloud / Snow Discriminator | MODIS | Product Variant | 1 km/3 hour | 2 km/5 min | Since Fall 2009 | CIRA |
| Cloud Layers & Snow Cover Discriminator | MODIS | Product Variant | 1 km/3 hour | 2 km/5 min | Since Fall 2009 | CIRA |
| Snow / Cloud Discriminator (3-color technique) | GOES | Product Variant | GOES 4 km/30 min | 2 km /5 min | Since Summer 2010 | CIRA |